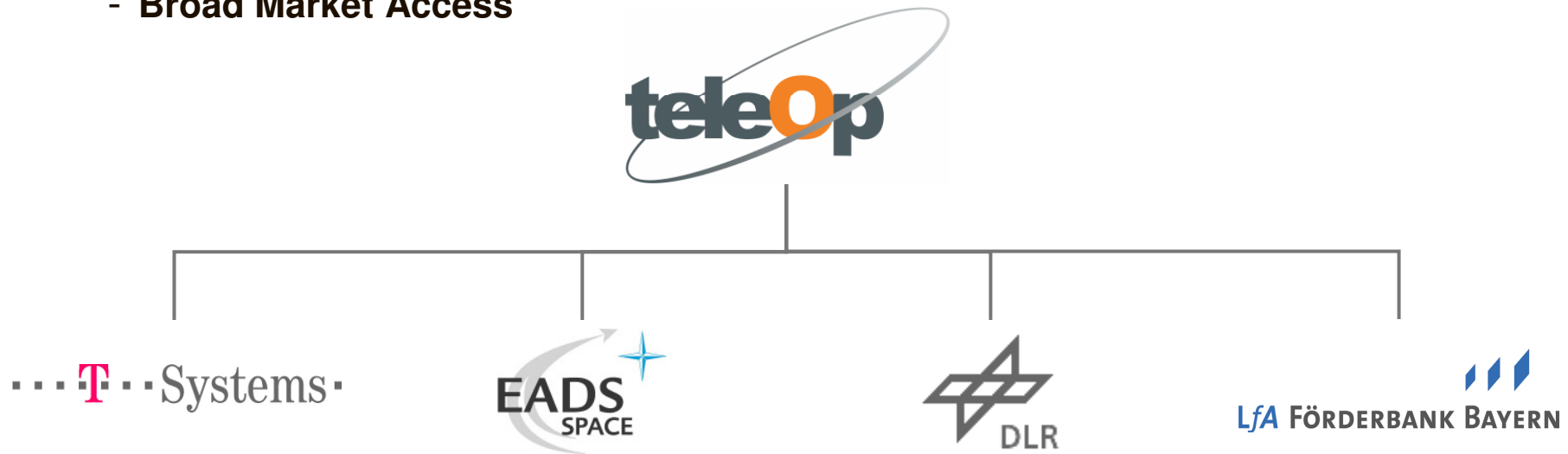


**TeleOp GmbH**

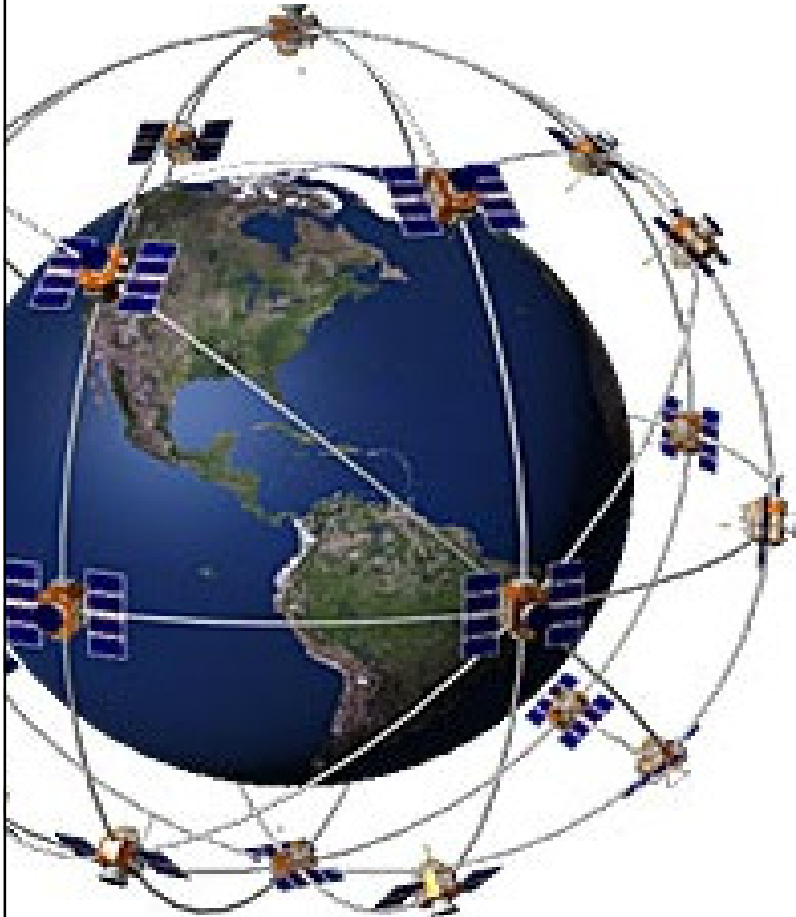
## **Status of the Galileo Concession and the Operations Concept**

Dr. Stefan Sassen  
Managing Director

- **TeleOp is shareholder of the Concessionaire and the Operations Company**
- **TeleOp is located in Oberpfaffenhofen at the future Galileo Control Centre**
- **TeleOp effectively combines competencies for**
  - **Satellite Operations**
  - **IT, Logistics & Maintenance Services**
  - **Satellite Navigation Technologies**
  - **Applications Know-How**
  - **Broad Market Access**



# The Galileo System



- **27 + 3 Satellites in 3 circular orbit planes:**
  - **Altitude: 23616 km**
  - **Orbit inclination: 56°**
  - **Orbit periode: 14hrs 4min,**
  - **ground track repetition: 10days**
- **World wide network of ground infrastructure:**  
**GCC, TT&C, ULS, GSS**
- **4 satellites in view will enable position fix (X, Y, Z) and time reference (T)**
- **5 Galileo services**
- **Interoperability with GPS**

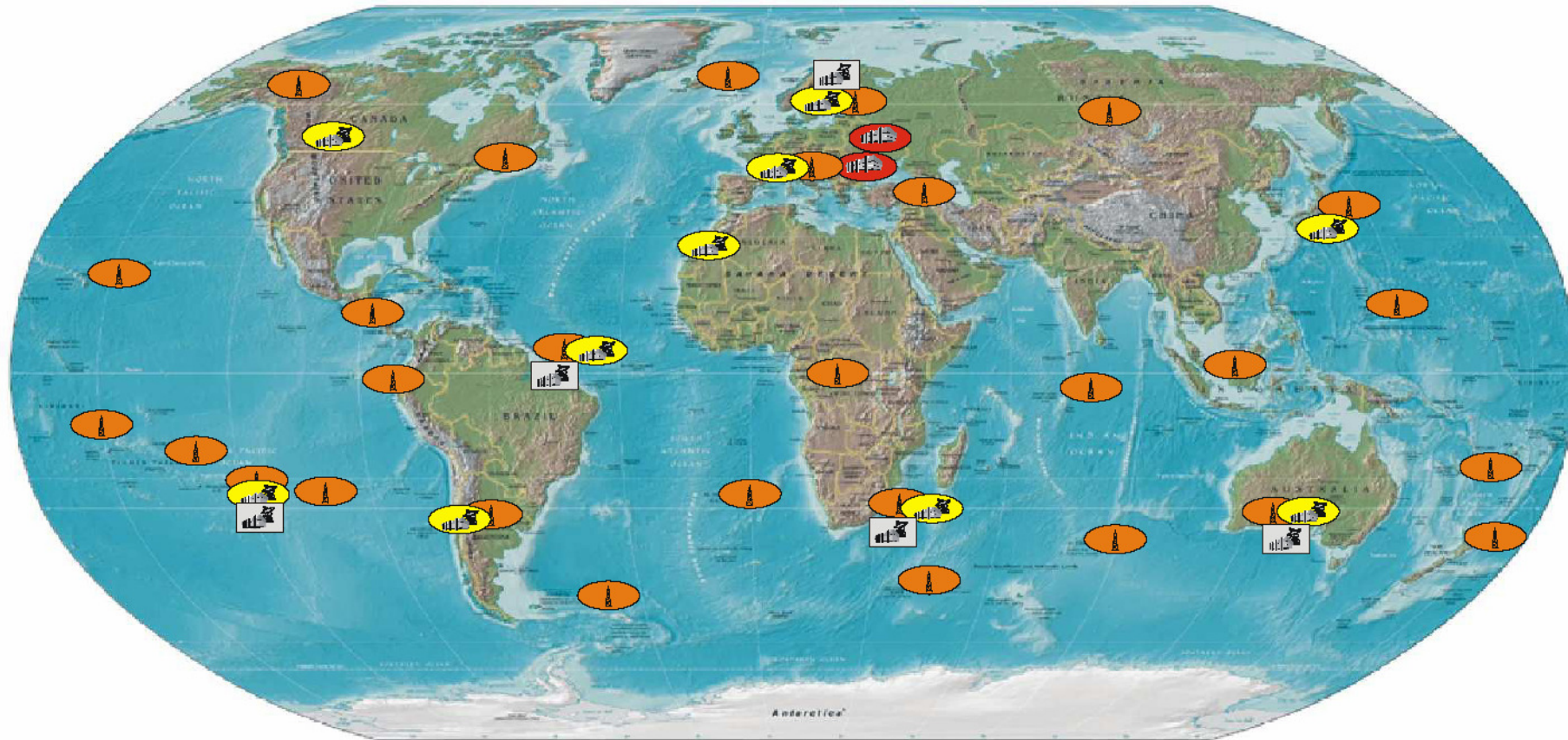
# Galileo Space Segment



- **Satellite Mass:** 680 kg
- **Satellite Size:** 2.7m x 1.2m x 1.1m
- **Solar area span width:** 19m
- **Satellite Lifetime:** > 12yrs
- **Electrical Power:** 1.6 kW
- **Navigation Payload:** 70-80 kg / 850 W
- **SAR Transponder:** ca. 20 kg



# Galileo Ground Segment



GCC - Sites








GSS - Sites



ULS - Sites



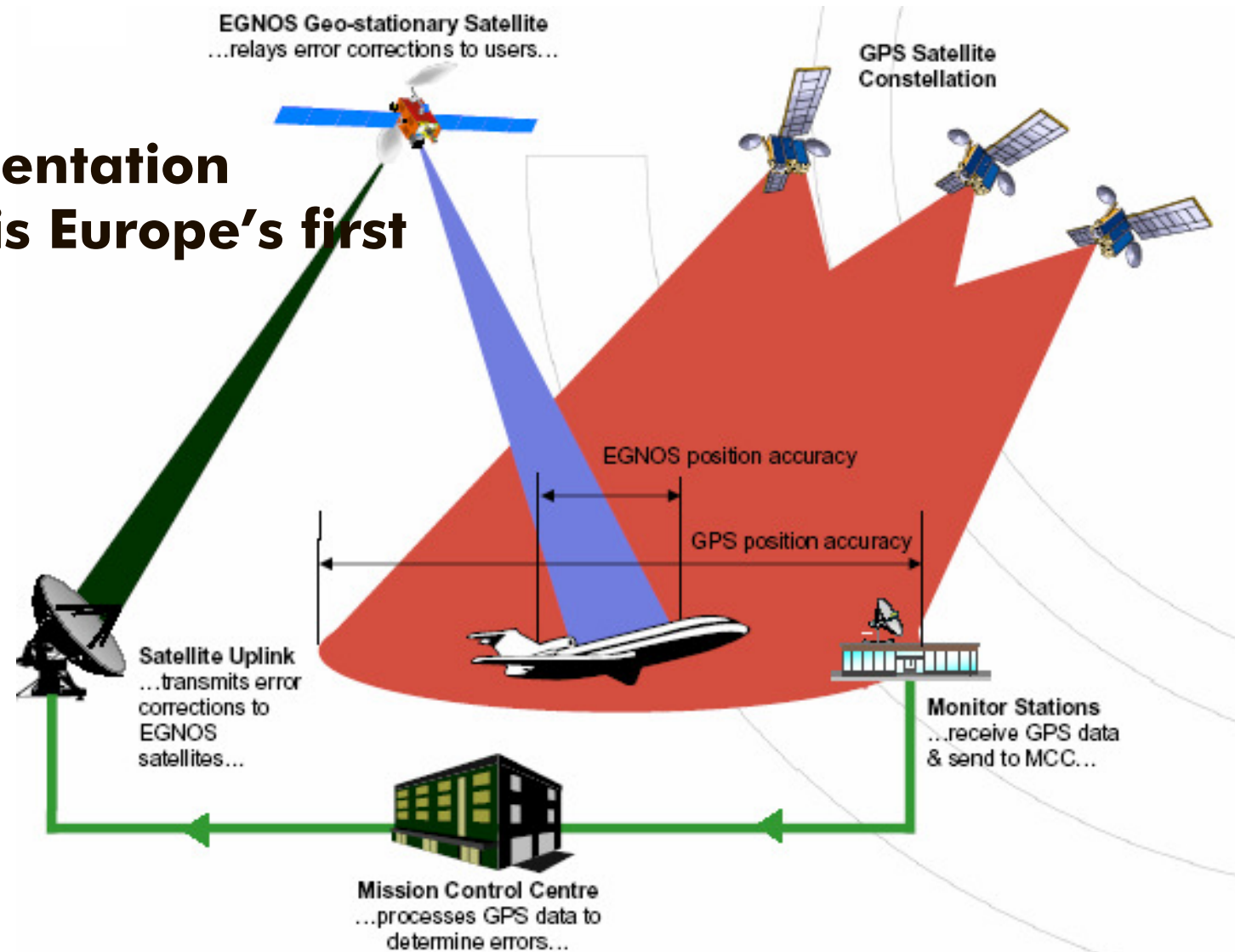
TT&C - Sites

<b>Navigation</b>	<b>Open Access</b>	Free to air; Mass market; Simple positioning	
	<b>Commercial</b>	Encrypted; High accuracy; Guaranteed service	
	<b>Safety of Life</b>	Open Service + Integrity and Authentication of signal	
	<b>Public Regulated</b>	Encrypted; Integrity; Continuous availability	
<b>SAR</b>	<b>Search and Rescue</b>	Near real-time; Precise; Return link feasible	

# EGNOS: The first step to Galileo

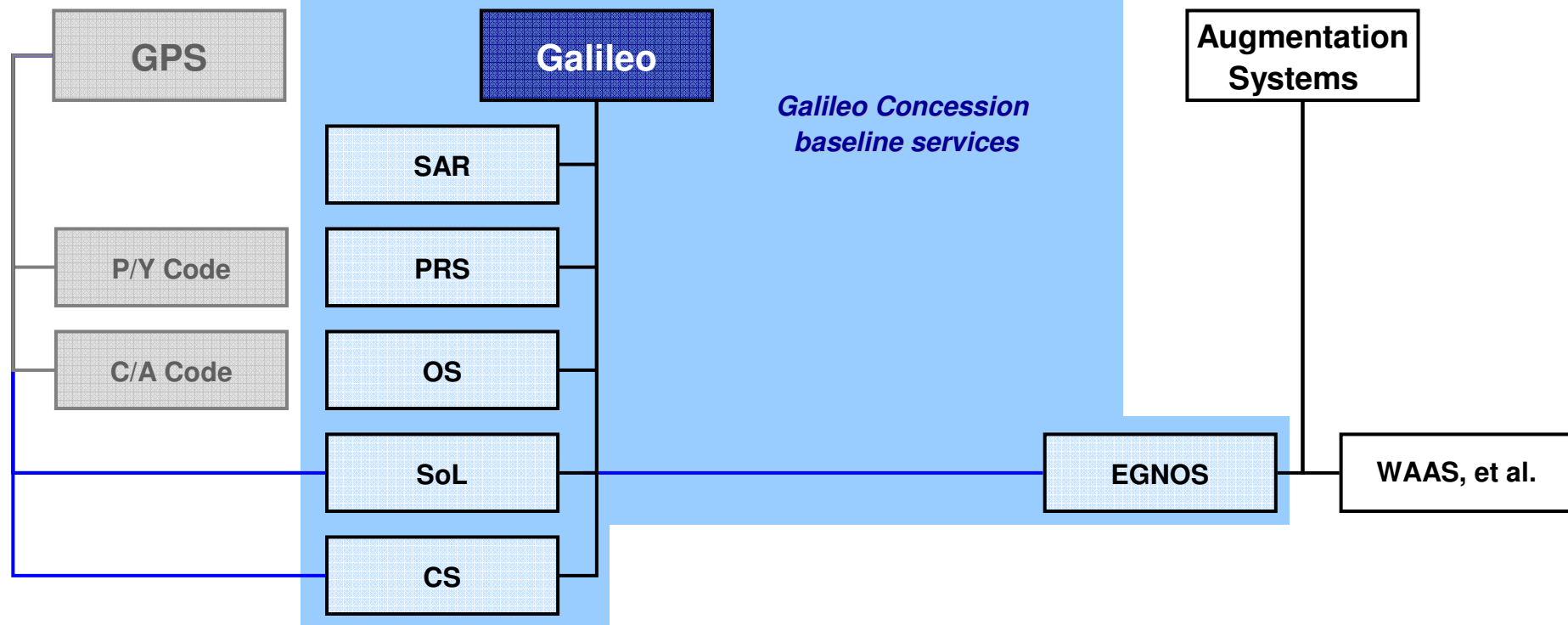


**EGNOS is  
a GPS augmentation  
system and is Europe's first  
GNSS step**



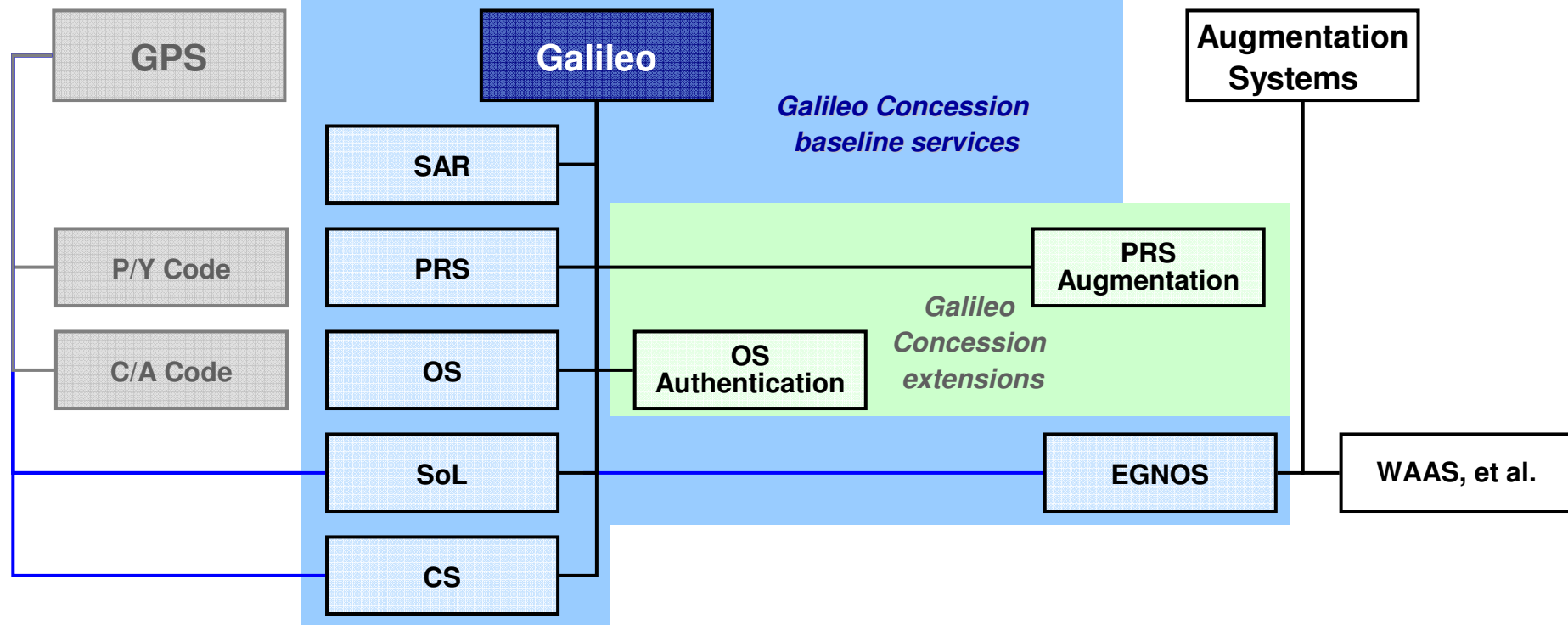


# Structure of Navigation Services

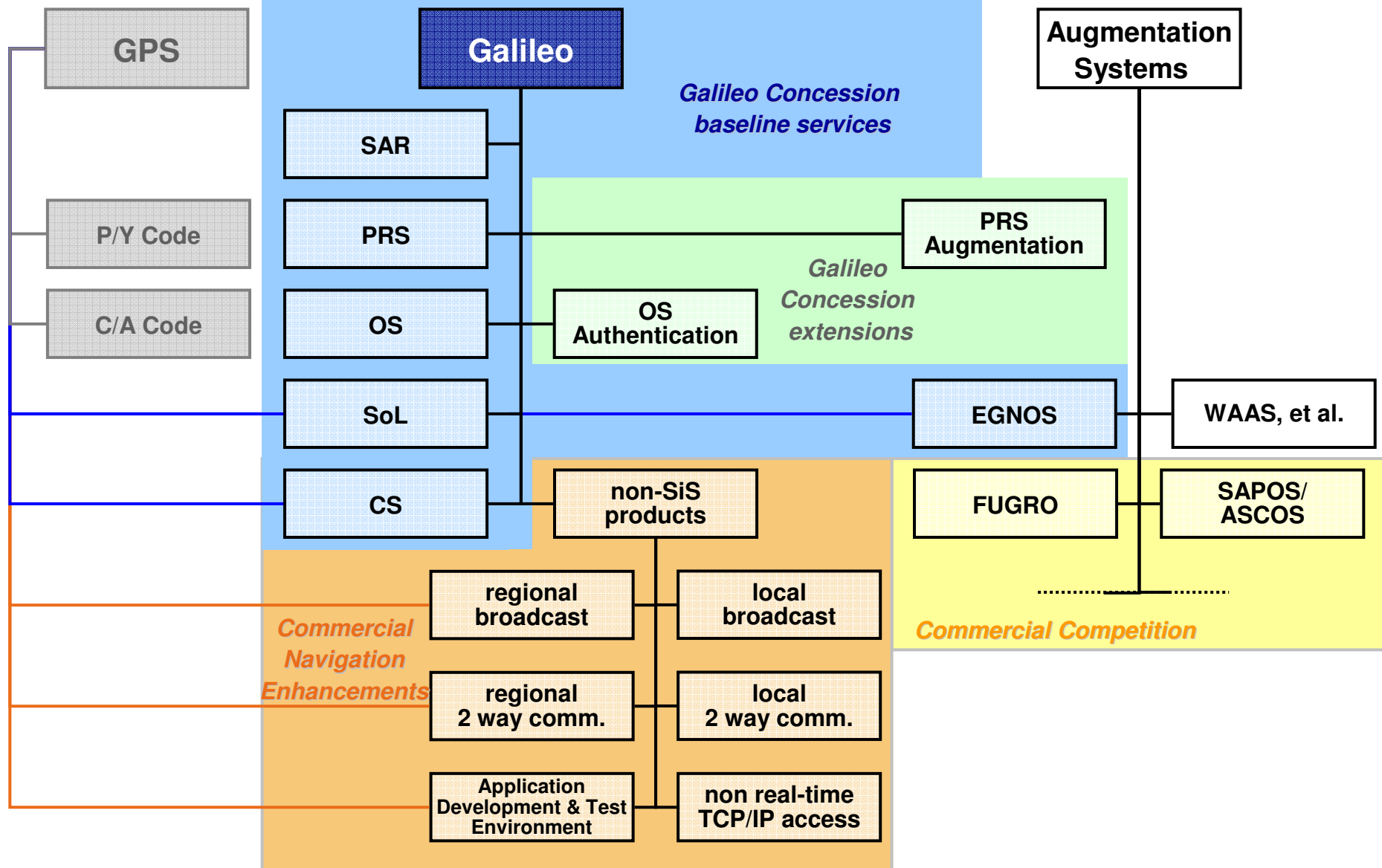




# Structure of Navigation Services



# Structure of Navigation Services



## European Space Agency

- Takes responsibility as technical supervisor in ESA PB-Nav
- Responsible for the Development and IOV phase
- *50% sponsor to the Galileo Joint Undertaking*

## European Commission

- Takes responsibility as political supervisor in the Galileo Supervisory Board – EU member states represented with relevant national agendas
- *50% sponsor to the Galileo Joint Undertaking*

## Galileo Joint Undertaking

- Responsible for the selection of the Galileo Concessionaire
- Will start negotiations with preferred bidder for the Concession contract

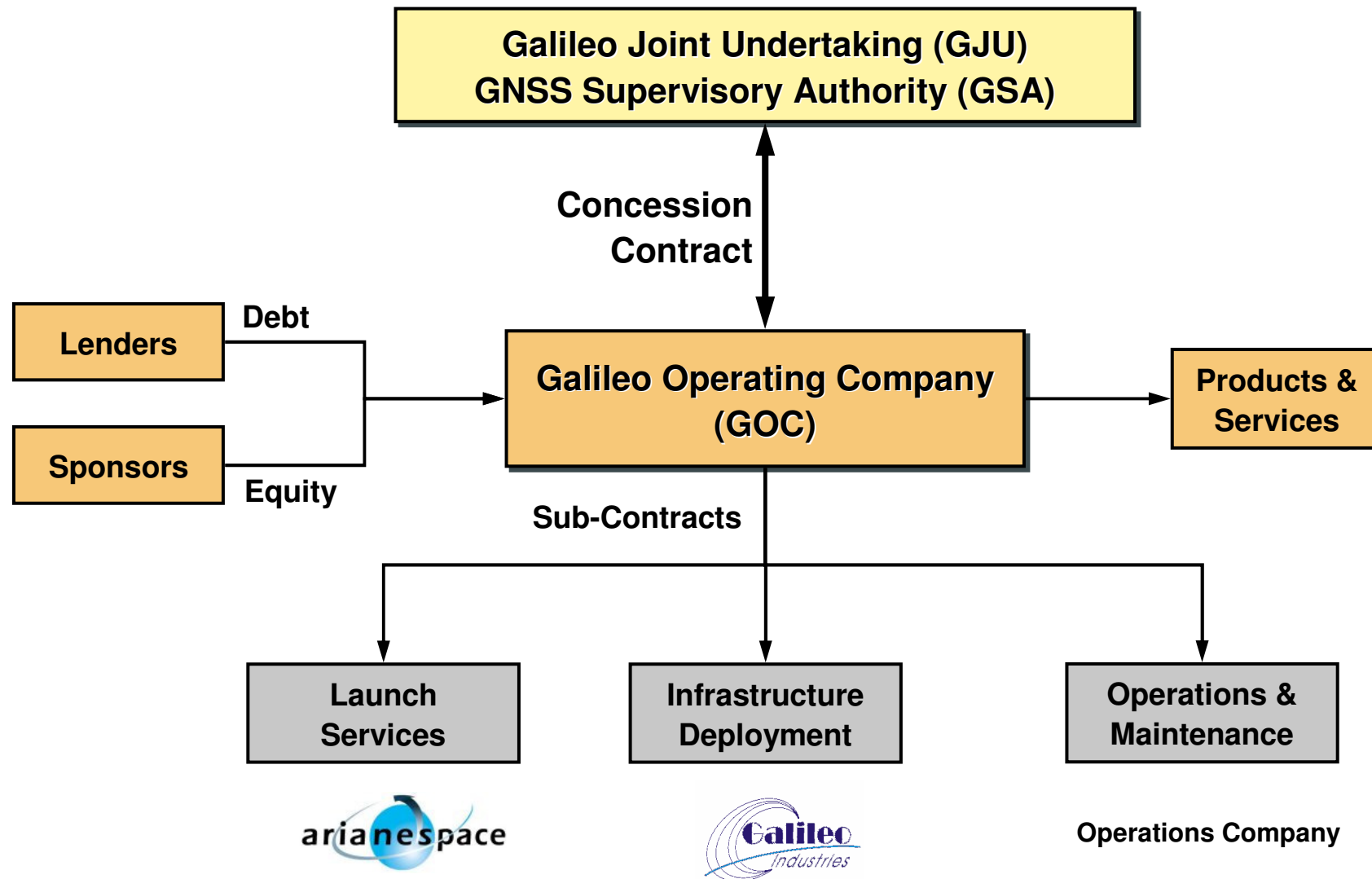
## GNSS Supervisory Authority (GSA)

- Agency formed by the European Union - Will take over from GJU by 2006 - Will be responsible for contracting with the Concessionaire
- Will be the owner of Galileo and EGNOS

## Concessionaire

- Merged Consortium – to complete the deployment of the system, operate and exploit it commercially, and encourage application development

# Concession Structure





# Galileo Concession Structure



## Galileo Supervisory Authority

Nachfolger des...



## Galileo Operating Company



## Launches

Arians – Soyuz Mix...



## Deployment



## Operations

Galileo & EGNOS...



- |                   |                                                                                                                                                                                                                |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>17.10.2003</b> | <b>Opening of Pre-Selection Tender</b><br>based on "Mission High Level Definition" (MHLD)<br>and "Mission Requirement Document" (MRD)                                                                          |
| <b>07.05.2004</b> | <b>Opening of Competitive Concession Tender</b>                                                                                                                                                                |
| <b>01.09.2004</b> | <b>Concession Proposals submitted by iNavSat and EURELY</b>                                                                                                                                                    |
| <b>10.11.2004</b> | <b>Opening of Extended Tender</b>                                                                                                                                                                              |
| <b>01.03.2005</b> | <b>Announcement of selection of two preferred bidders</b><br>and invitation of parallel negotiation                                                                                                            |
| <b>20.06.2005</b> | <b>Submission of Joint Proposal by iNavSat/Eurely to GJU</b>                                                                                                                                                   |
| <b>27.06.2005</b> | <b>GJU Press Release:</b><br>"... <b>better value for the public</b> ...achieved <b>with the merger</b> , as the joint proposal<br>combines complementarity and possibilities <b>from the two consortia.</b> " |
| <b>21.10.2005</b> | <b>Joint Bid Submission of the Merged Consortium to GJU</b>                                                                                                                                                    |
| <b>05.12.2005</b> | <b>Agreement between the partners of the prospective Galileo Concession</b>                                                                                                                                    |
| <b>17.02.2006</b> | <b>Agreement of Principles between GJU and Merged Consortium</b>                                                                                                                                               |

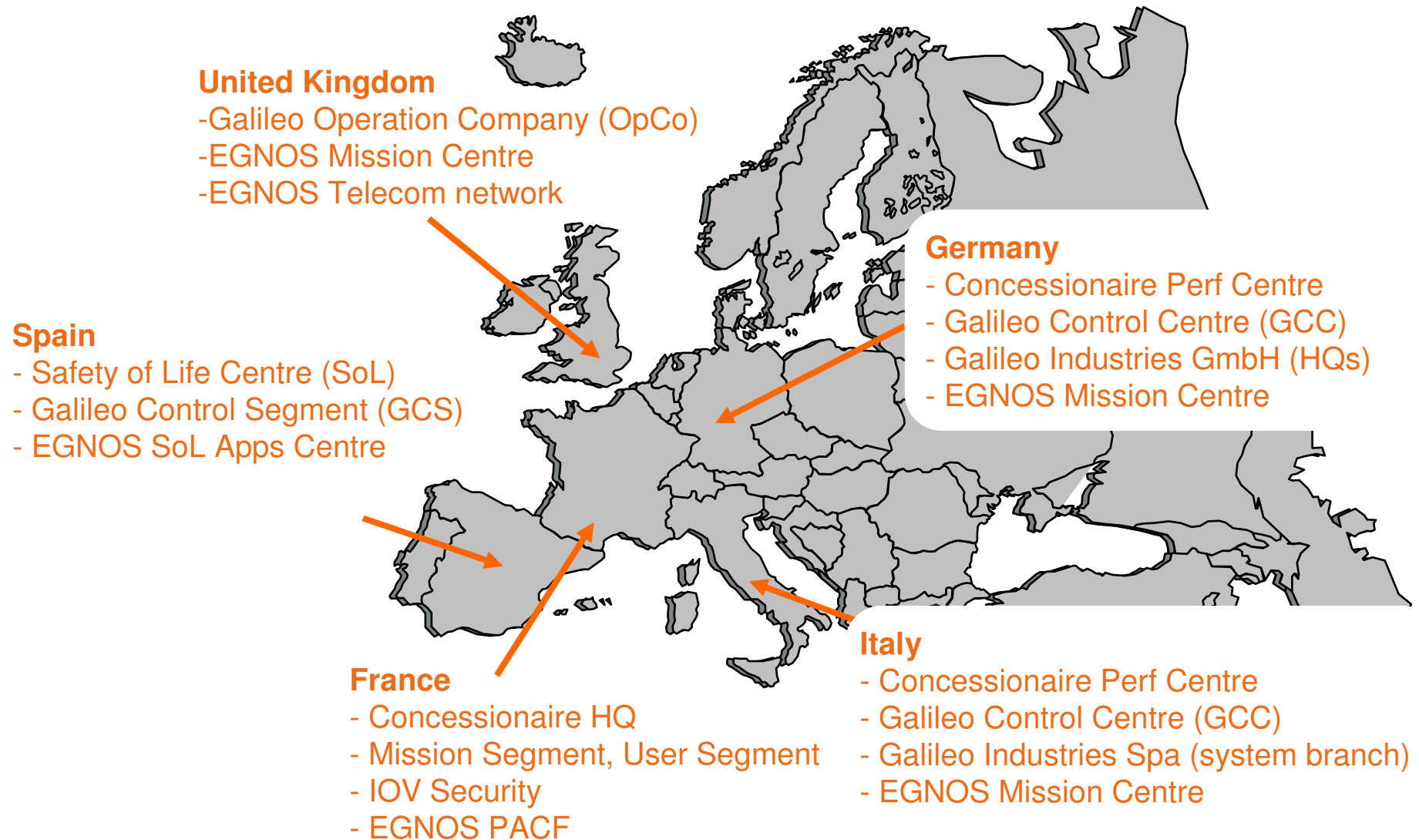
### **05.12.2005 Agreement between the partners of the prospective Galileo Concession**

- TeleOp as equal partner of the Merged Consortium (GJU authorisation followed on 21.Dec)
- Headquarters of GOC in Toulouse (FR) and OpCo in London (UK)
- GCCs & Performance Evaluation Centres in Oberpfaffenhofen (DE) and Fucino (IT)
- Safety of Life Centre and GCS located in Spain
- DLR will be prime contractor for IOV operations

### **17.02.2006 Agreement of Principles between GJU and Merged Consortium**

- Intensive and fruitful negotiations in bi-weekly repetition
- Key elements of the project agreed in outline (subject to more detailed ongoing negotiations)
- Recital of financial envelope and bankability requirements based on Joint Bid from Oct 2005
- Fundamental importance of transfer from IOV-Phase to Concession-Phase is acknowledged

# Main Galileo and EGNOS sites





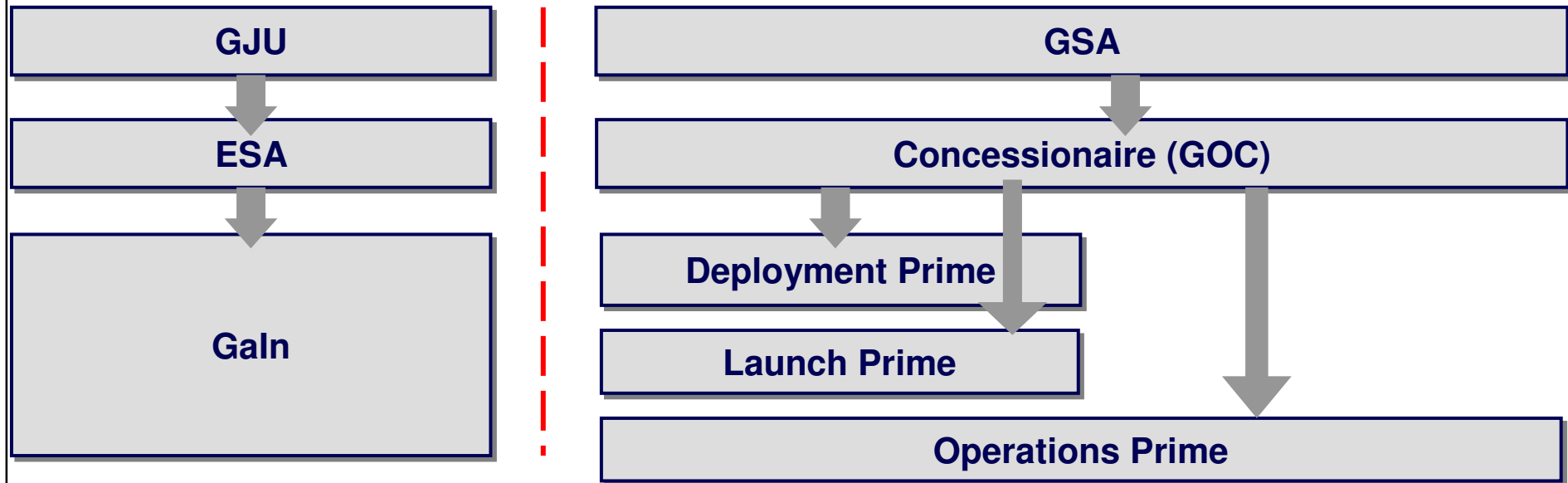
# Galileo Programme Phases



IOV Phase



20-year Concession



GJU will be succeeded by the Galileo Supervisory Authority

GOC is taking over the role of ESA

Three main subcontracts to be placed: Deployment, Operations, Launches

- **Foundation of Special Purpose Companies as Concessionaire (GOC) and Operations Company (OpCo) in mid 2006**
- **Concession Contract negotiations (Head of Terms, Frame Contract) with GJU finalised in 2006**
- **Agreement of the Financial Envelope in line with EC budget 2007-2013 planning**
- **Agreement of IOV handover process from ESA to Concessionaire**
- **Deployment Phase start after IOV-Phase handover in 2009**

